# Computer Engineering Department

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UNIVERSITY OF MUMBAI

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Synopsis on

# *JEDI*

**(HERE YOUR VOICE MATTERS, TRULY!)**

Submitted in partial fulfillment of the degree of
Bachelor of Engineering(Sem-3)
in
**Computer Engineering**

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# Abstract


- To build a fault tolerant (well what is the harm in calling it one), decentralized micro-blogging platform to express the fundamental human right i.e. Free Speech .
- Traditional "Social Media" platforms, were never designed to keep their user's opinions at priority.
- The gatekeepers are generally happy as long as they have a huge growing number of daily active users.
- They seldom care about what happens to the user's content and usually turn away when matters concerning privacy or government interference come to limelight.
- We on the other hand, kind of are not happy with the way things are happening, so we thought of a way were in we can bring about newer people respecting technologies onto the pre-existing ones.
- We just intend to to be a twig and hope others help us build the nest.

# Problem Definition

By today web standard, that is the web 2.0 , there really exists no decentralization in reality.Everything is governed by a central authority, which then plays the monopoly. Our project aims to tackle this problem through a relatively new technology knows as IPFS.

- Decentralisation
- Content Archival
- Content Censorship

# Objectives

- To provide our users a platform where they can truly express themselves without the underlying fear of being monitored, profiled and we try our level best to prevent our user's thoughts from being censored.

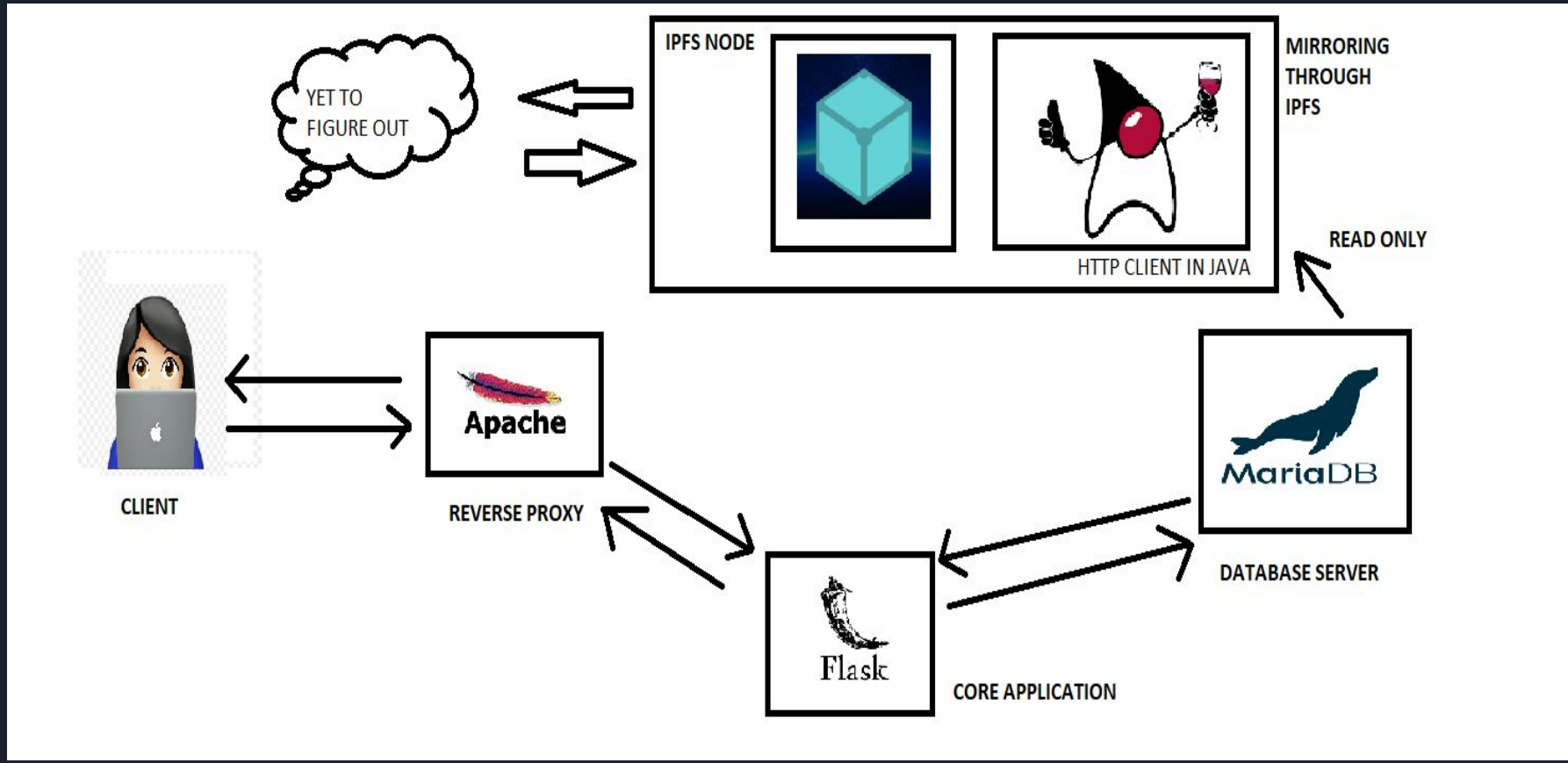
# Scope

- To understand the inner working of IPFS and (design+incorporate) decentralized software system design patterns to existing legacy system architectures.
- To gain insights on fault tolerant systems and data redundancy techniques specifically.
- We intend to implement a working model of the core application as soon as possible and then start working on the IPFS part, for that is our main intend.

# Existing System/project

- As IPFS is a relatively new technology, there aren't many production ready applications/services out there. Some (Quanta) services do exist, but those are purely built on ipfs as a their main storage component. Whereas , our project is a good example as to how one can incorporate IPFS on traditionally architected platforms/services.

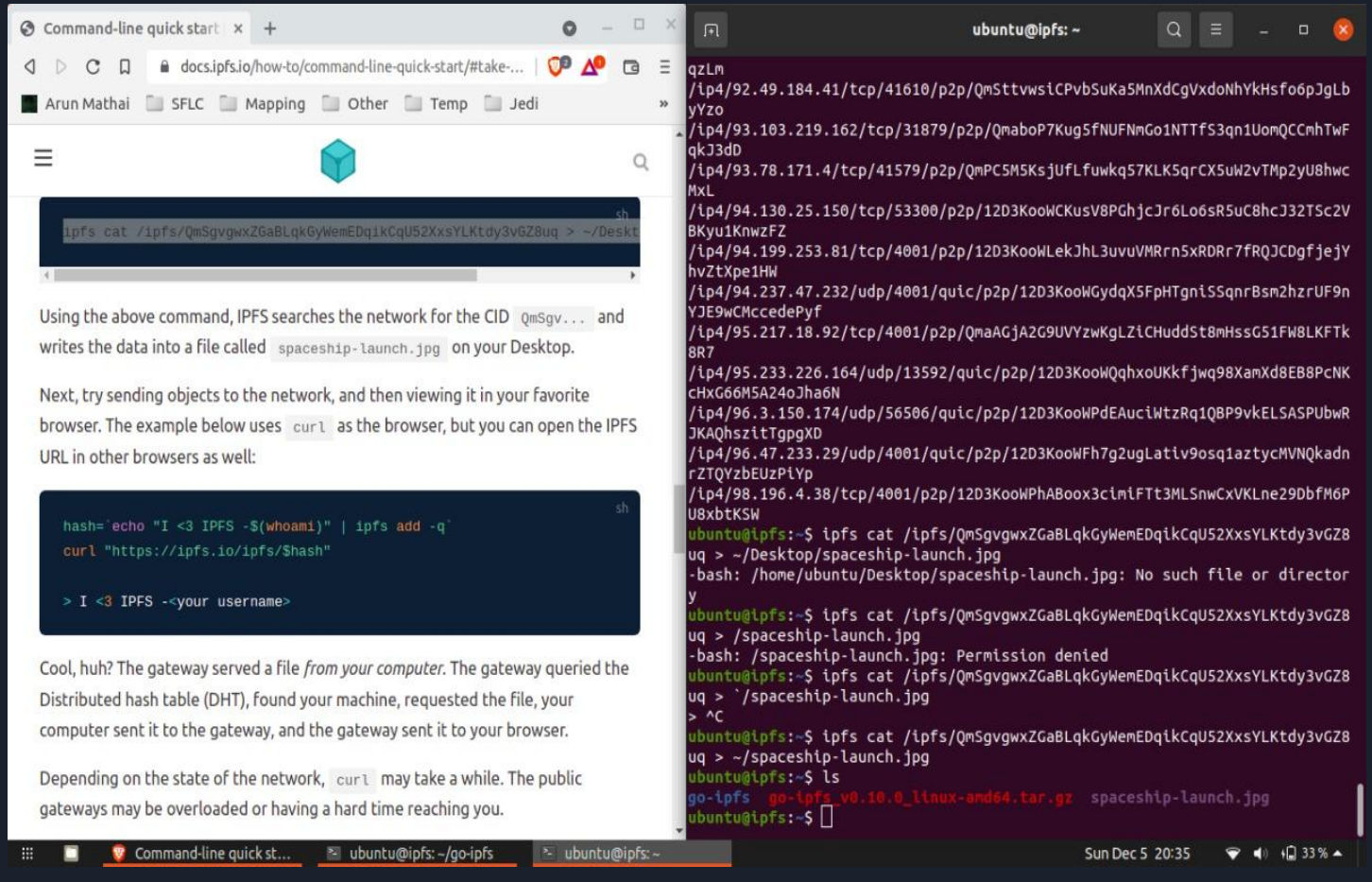
# Architecture

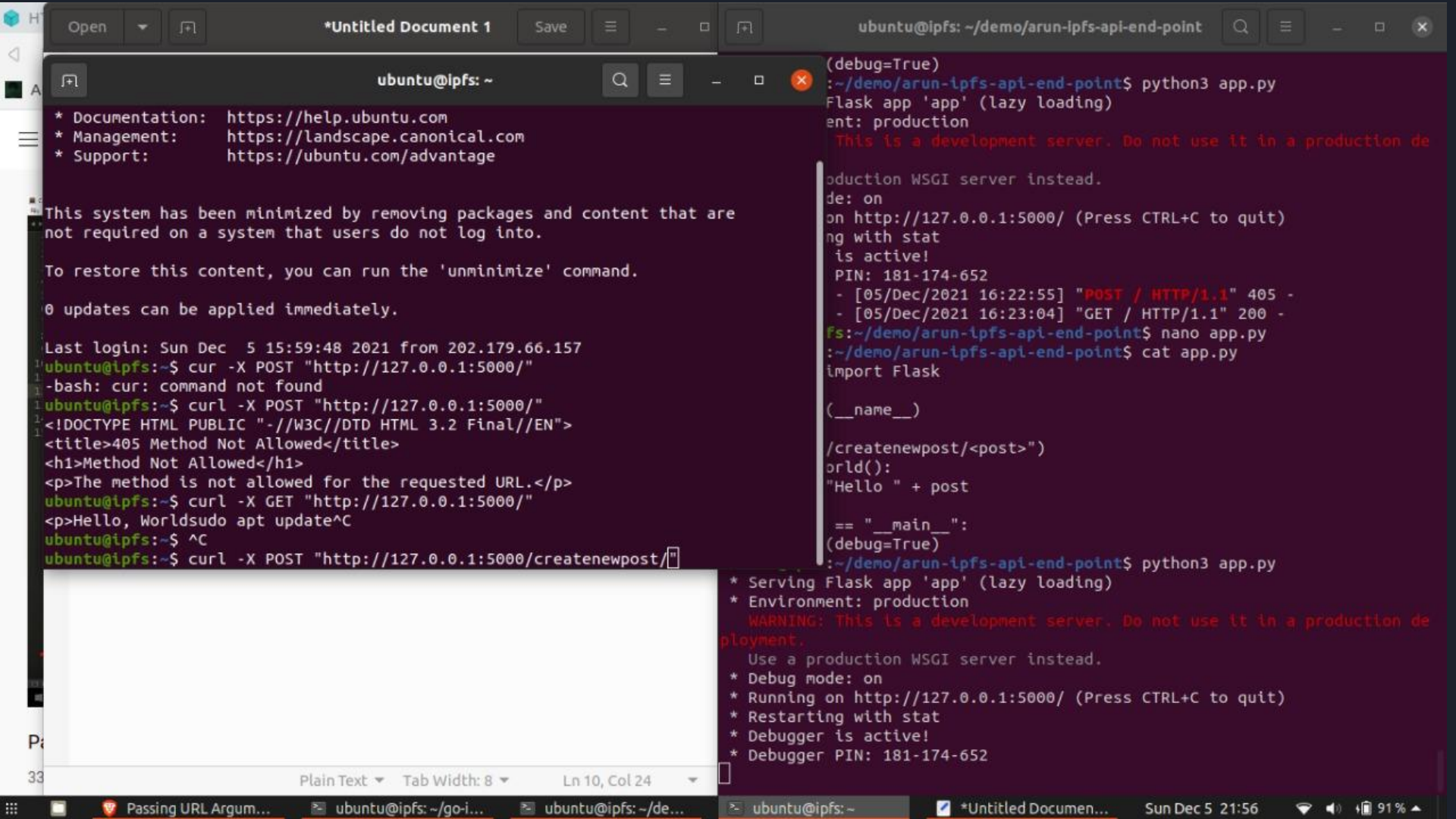


# Technology stack

- Apache --> As our main reverse proxy
- Flask --> As the backend api component handler
- SQLAlchemy --> As the Object Relational Mapper tool
- MariaDB --> As the database
- Java SE --> As the Http Client for the IPFS node
- IPFS Node --> The IPFS Daemon itself

# Implementation




Open
*Untitled Document 1
Save
ubuntu@ipfs: ~
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/advantage
This system has been minimized by removing packages and content that are not required on a system that users do not log into.
To restore this content, you can run the 'unminimize' command.
0 updates can be applied immediately.
Last login: Sun Dec 5 15:59:48 2021 from 202.179.66.157
ubuntu@ipfs:~$ cur -X POST "http://127.0.0.1:5000/"
-bash: cur: command not found
ubuntu@ipfs:~$ curl -X POST "http://127.0.0.1:5000/"
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2 Final//EN">
<title>405 Method Not Allowed</title>
<h1>Method Not Allowed</h1>
The method is not allowed for the requested URL.
ubuntu@ipfs:~$ curl -X GET "http://127.0.0.1:5000/"
Hello, Worldsudo apt update^C
ubuntu@ipfs:~$ ^C
ubuntu@ipfs:~$ curl -X POST "http://127.0.0.1:5000/createnewpost/"
Plain Text
Tab Width: 8
Ln 10, Col 24
ubuntu@ipfs: ~/demo/arun-ipfs-api-end-point
(debug=True)
:~/demo/arun-ipfs-api-end-point$ python3 app.py
Flask app 'app' (lazy loading)
ent: production
This is a development server. Do not use it in a production de
oduction WSGI server instead.
de: on
on http://127.0.0.1:5000/ (Press CTRL+C to quit)
ng with stat
is active!
PIN: 181-174-652
- [05/Dec/2021 16:22:55] "POST / HTTP/1.1" 405 -
- [05/Dec/2021 16:23:04] "GET / HTTP/1.1" 200 -
fs:~/demo/arun-ipfs-api-end-point$ nano app.py
:~/demo/arun-ipfs-api-end-point$ cat app.py
import Flask
(__name__)
/createnewpost/<post>")
orld():
"Hello " + post
== "__main__":
(debug=True)
:~/demo/arun-ipfs-api-end-point$ python3 app.py
* Serving Flask app 'app' (lazy loading)
* Environment: production
WARNING: This is a development server. Do not use it in a production de
ployment.
Use a production WSGI server instead.
* Debug mode: on
* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
* Restarting with stat
* Debugger is active!
* Debugger PIN: 181-174-652
Passing URL Argum...
ubuntu@ipfs:~/go-i...
ubuntu@ipfs:~/de...
ubuntu@ipfs:~
*Untitled Documen...
Sun Dec 5 21:56
91 %

```
QmdXmL2dyFU5ZT51G7bXzc3D1sPaBLEJiQtDRgzDhEAwx1 indirect
QmTG7Lf6kXmW53drX71m4mt4PhK16gPuTxUJfiJXfyJyNp recursive
QmU5k7ter3RdjZXu3sHghsga1UQtrztnQxmTL22nPnsu3g indirect
QmUVU3fNiqAxmQJtwVCygGLArkG5c7uEdigxhKomCYPDpM recursive
QmYCvbfNbCwFR45HiNP45rwJgvatpiW38D961L5qAhUM5Y indirect
QmZtmD2qt6fJot32nabSP3CUjicnypEBz7bHVDhPQt9aAy recursive
QmXqbmmqMJ7rpQ34zQnFizbMmef3pM9Bzrv4u2MoHN5kjU recursive
QmPZ9gcCEpqKTo6aq61g2nXGUhM4iCL3ewB6LDXZCtioEB indirect
QmQPeNsJPyVWPFDVHb77w8G42Fvo15z4bG2X8D2GhfbSXc recursive
QmQy6xmJhrcC5QLboAcGFcAE1tC8CrwDVkrHdEYJkLscrQ indirect
QmUNLLsPACCz1vLxQVkXqqLX5R1X345qqfHbsf67hvA3Nn recursive
QmUfYrWyvRbdJVpUfp3A7oCKBf13uLouaJ3VBMZtkBnb5b indirect
QmQ5vhrL7uv6tuoN9KeVBwd4PwfQkXdVVmDLUZuTNxqgvm indirect
QmSNqdamSEtn6xndvD24TwwJ4JATsJNAt9p95vMM1wUnRs recursive
QmbFMke1KXqnYyBBWxB74N4c5SBnJMVAiMNRcGu6x1AwQH recursive
QmQGiYLVAdSHJQKYFRTJZMG4BXBHqKperaZtyKGmCRLmsF indirect
QmSgvgwxZGaBLqkGyWemEDqikCqU52XxsYLKtdy3vGZ8uq recursive
QmZLNBFTXrHymPf77yVieKj2pfJnJsSRwzb1tPAmmoj6F1 recursive
```

```
pfs:~$ ls
-panel  go-ipfs  go-ipfs_v0.10.0_linux-amd64.tar.gz
pfs:~$ cd dem
d: dem: No such file or directory
pfs:~$ cd demo-for-panel/
pfs:~/demo-for-panel$ echo "hello panel, we are the best , we know that

pfs:~/demo-for-panel$ echo "hello panel, we are the best , we know that"
nel, we are the best , we know that
pfs:~/demo-for-panel$ echo "hello panel, we are the best , we know that" > best
pfs:~/demo-for-panel$ cat best
nel, we are the best , we know that
pfs:~/demo-for-panel$ curl -X -F file=@best "http://127.0.0.1:5001/api/v0/add

pfs:~/demo-for-panel$ curl -X -F file=@best "http://127.0.0.1:5001/api/v0/add"
) Could not resolve host: best
thod Not Allowed
pfs:~/demo-for-panel$ curl -X POST  -F file=@best "http://127.0.0.1:5001/api/v0/add"
"best","Hash":"QmNTW1W57BLidGAYPAKgAtLVRbfXjcoxFXhXBzmwHCnt9P","Size":"52"}
pfs:~/demo-for-panel$ curl -X POST "http://127.0.0.1:5001/api/v0/get?arg=QmNTW1W57BLidGAYPAKgAtLVRbfXjcoxFXhXBzmwHCnt9P"
 Binary output can mess up your terminal. Use "--output -" to tell
 curl to output it to your terminal anyway, or consider "--output
 <FILE>" to save to a file.
pfs:~/demo-for-panel$ curl -X POST "http://127.0.0.1:5001/api/v0/cat?arg=QmNTW1W57BLidGAYPAKgAtLVRbfXjcoxFXhXBzmwHCnt9P"
nel, we are the best , we know that
pfs:~/demo-for-panel$ ls

pfs:~/demo-for-panel$
```

https://ipfs.io/ipfs/QmN

ipfs.io/ipfs/QmNTW1W57BLidGAYPAKgAtLVRbfXjcoxFXhXBzmwHCnt9P

Incognito

ello panel, we are the best , we know that

meet.google.com is sharing your screen. Stop sharing Hide

meet.google.com i... (2) WhatsApp - Go... https://ipfs.io/ipfs/... ubuntu@ipfs: ~ ubuntu@ipfs: ~/de... Sun Dec 5 23:41 78 %

# Benefits for Society

- A more liberal internet (as it should be ).
- A platform which truly empowers its users to be more authentic and not refrain from expressing themselves.
- Our platform would ensure that our voice and opinions stay heard well beyond time and not be muffled by factors in time.

# Thank You